dicted is given for groups of cases in which the predicted departures exceeded certain amounts without regard to sign, for example, when the indicated departure was 3.0 inches or more, the sign of the actual departure was the same in 86 per cent of the cases.

TABLE. 2—PERFORMANCE, INDIAN MONSOON FORECASTS (PENINSULA), 1891–1921

Prediction limits	0″.0 to +0″.9		+1″.0 to +1″.9		+2″.0 to +2″.9		+3″.0 to +3″.9		+4″.0 and over	
	Same	Op-po-site	Same	Op-po-site	Same	Op-po-site	Same	Op-po-site	Same	Op-po-site
Actual departures and signs.........	+0.8 +4.2* +6.7*	−1.7	+2.6	−0.5	+5.7 +1.0 +2.0	−0.6	+2.0 +8.6*		+9.9 +3.2	−0.9*
No. of cases..... ...	3	1	1	1	3	1	2	0	2	1
Prediction limits	**0″.0 to −0″.9**		**−1″.0 to −1″.9**		**−2″.0 to −2″.9**		**−3″.0 to −3″.9**		**−4″.0 and over**	
Actual departures and signs.........		+4.0* +4.6* +1.5	−10.5*	+1.0 +4.3*	−3.9		−1.3 −2.4	+1.9*	−16.6 −4.2 −8.4 −6.2 −7.2 −11.1	
No. of cases........	0	3	1	2	1	0	2	1	6	0
For predicted departure[a] more than..............	0″.0		1″.0		2″.0		3″.0		4″.0	
Correct signs........	68%		75%		84%		86%		89%	
No. of cases........	31		24		19		14		9	

[a] Whether plus or minus.

* Predicted departures differ from actual by 3.0 inches or more.

In studying the table, it will be noted that one-third of the cases are starred indicating that the predicted departures differ from the actual by 3.0 inches or more. This may give us pause for a moment. However, considering that the main object of the forecast is to indicate the abnormally dry years, it will be noted that when the forecasts indicated 4.0 or more below normal, they were successful in every case, not only with regard to sign of departure, but substantially as to amount. Perhaps the most outstanding failure was in 1920 when a deficit of

10.5 occurred following a prediction of −0.18. Other failures that deserve mention were in 1909 when +4.3 was predicted and the actual was −0.9; in 1895 when the predicted was +2.1 and the actual −0.6; in 1906 when the predicted was −3.6 and the actual was +1.9, and in 1908 when the predicted was −1.5 and the actual was +4.3.

Attention may properly be invited also to the fact that out of the seven cases in which predictions were made for departures between +0.9 and −0.9, four had actual departures of 4.0 inches or more above normal.

It seems appropriate to call attention to the statement by Walker[7] in which he indicated that even if the relationship indicated by the correlation-coefficient be fairly high, it will not justify a forecast for public consumption and that, unless the chances of success are at least four out of five, i.e., with a correlation-coefficient of 0.80, a forecast should not be made.

The results obtained in India justify the issue of the monsoon forecasts for that country, which has conditions regarding its rainy season without parallel in other parts of the world.

Similar methods have been tried in other parts of the world and there is every reason to believe that they have their application in the United States.

In conclusion may I urge that Walker's criterion be followed and that caution be exercised in attempting forecasts until we have prospects of four successes out of five cases.

The effect of ocean-currents on the climate of continents. Alfred J. Henry, Weather Bureau.

As every one knows the specific heat of water is much greater than that of land, equal volumes being considered. This is equivalent to saying that when equal quantities of heat are received upon equal areas of land and of water the resulting increase of temperature is almost twice as great on land as on water, even when in the case of water the heat expended in the process of evaporation is neglected. When, therefore, a parallel of latitude runs partly over land and partly over water, differences in climate are brought about which would not exist if the parallel passed exclusively over a land or a water surface. This fundamental fact is the basis of classifying climates into two great groups: continental and marine. Briefly the part played by the ocean and ocean-currents in climatic changes is that of a great regulator and this function is exercised regardless of the speed of

[7] Quart. Journ. Roy. Meteor. Soc. **52**: 73–80. 1926.

movement of the oceanic waters. The greatest effect is produced, of course, when the ocean-current flows from low to high latitudes and vice versa, hence the effect is a graded one ranging from a modest influence in the case of no current to a very considerable one in the case of currents or drifts from low to high latitudes and vice versa. The effects naturally diminish with increase of distance from the ocean but there is no arbitrary limit at which the effect ceases.

Ocean-currents that originate in low latitudes and flow poleward, as for example, the Gulf Stream in the North Atlantic and the Japan Current in the Pacific, are in a class by themselves, since they transport large quantities of heat from equatorial regions poleward and in the case of the Gulf Stream drift, even to the Arctic Circle and beyond. This drift gives us a very striking example of the warming of a continent in winter as the direct result of heat borne by an ocean-current. Consider, for example, the region along the fifty-second parallel of north latitude from the Irish coast at Valentia to Barnaul, Siberia. The annual mean temperature in this distance of nearly four thousand miles diminishes 8°.4 C (15°.1 F) and the January mean is 23°.7 C (42°.7 F) lower in Siberia than at Valentia. This is, of course an extreme case.

Consider next, an oceanic current that flows in the reverse direction, the Humboldt or Peruvian current which flows northward along the west coast of South America. The effect of this current is twofold, first, a lowering of the temperature along the neighboring coast and, second, a great diminution in the rainfall as explained in the following: Warm currents flowing from low to high latitudes increase the precipitation on neighboring coasts and highlands because the air over the water is saturated with water-vapor at a higher temperature than that which belongs to the latitude in which it finds itself. Naturally its temperature departs but little from that of the dew-point of air in the higher latitudes, thus favoring precipitation with a small reduction in temperature.

Conversely currents flowing from higher to lower latitudes diminish the precipitation because as they gain distance toward the equator, the moist air over them has a temperature which is below the normal for the latitude. As this air becomes warmed, particularly over the neighboring land areas its temperature departs more and more from that of the dew-point at which condensation occurs and precipitation becomes more and more difficult. The west coast of South America, say between the equator and 30° south latitude, has a very small rainfall and is practically rainless in northern Chile and southern